

Internationalization

Programmable Usable Interfaces (PUI)

Spring 2006



Administration

- HW5 due today
- HW4 in 7days
- HW6 in 9 days



What is Internationalization?

- *Internationalization* is the process of designing an application so that it can be adapted to various languages and regions without engineering changes. Sometimes the term internationalization is abbreviated as **i18n**, because there are 18 letters between the first "i" and the last "n."



Why Internationalization?

- Interface may be used in multiple countries and users may have very different backgrounds
 - Different language background
 - Different cultural background



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Assuming all users are the same and build a one-size-fits-all-interface

→ can lead to unusable and unintuitive interfaces



Y!http://www.yahoo.com/

File Edit View Favorites Tools Help

Yahoo!

AT&T Yahoo! DSL: \$14.99/mo. No contract required.

YAHOO!

My Yahoo! My Mail

Web Images Video Local Shopping more

Web Search

Yahoo! Answers: Ask a question | Answer questions

Page Options

Autos Finance Games GeoCities Groups

HotJobs Maps Movies Music Personals

Photos Real Estate Shopping Sports Tech

Travel TV Yellow Pages Y! International

More Yahoo! Services

In the News World Local Video

As of 10:42 a.m. EDT

- Female suicide bomber kills 16 in Iraq | Fierce fighting
- Russia, France voice doubts about Iran nuclear claims
- 19 Palestinians arrested in Passover bomb plot
- Bush to veto federally funded stem-cell research bill
- Sub to search for bodies from sunken Greek ship | Photos
- Australia moving threatened Tasmanian devils to sanctuary
- Madonna, Police among acts to play Live Earth concerts

» More: News Popular Business

Markets: Dow: +0.0% Nasdaq: +0.3% Sponsored by: Scottrade

Stock Quotes: Go

Featured Entertainment Sports Life

Apr 10, 2007



Dreamed number dials love

Newlyweds met when he texted the number running through his head.
» Her reaction?

Search: What do dreams mean?

- Find the love of your dreams

Check your mail status: Sign In Free mail: Sign Up

Mail Messenger Radio

Weather Local Horoscopes

Make your 2006 IRA contribution by April 17th.

ACT NOW


Smart move.™

Fidelity Brokerage Services, Member NYSE, SIPC 456039
Contribute today - Ad Feedback


Small Business

- Get a Web Site
- Domain Names
- Sell Online
- Search Ads

Featured Services

- Downloads
- Health
- Kids
- Mobile
- Voice
- Personal Website

Inside Yahoo! HotJobs



Skills to succeed at work

- Tell your story
- Hone your resume
- Find your fit
- Grow your network

Internet 100%

Goals of Lecture

- Recognize some common problems with internationalization
 - Language Issues
 - Translation Issues
 - Icon Issues
 - etc.
- Know what to do
 - Avoid obvious mistakes
 - Localization



Language Issues

- How many English speakers are there?
 - First language: 380 million
 - Second language: 600 million
 - Learners: Over 1 billion
- British English vs. American English
 - Where is the loo? (restroom)
- Southern English vs. Northern English
- Adult English vs. Teenager English



Example of American English vs. British English



Example of American English vs. British English



What about rubbish?



Translation Issues

- Standard terms for “File”, “Edit”, etc. in each language
 - There are probably hundreds of computer words
- What about “Viewport”, “Canvas”, “Front”
 - Across the industry, and in a company’s other products
 - Keep glossaries of words to be used
- Often need to know the rationale behind why names were chosen
 - E.g. “Find” vs. “Find File” both translated to “Rechercher” in French
- Understand the meanings in local languages/slang



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 - Chevy Nova (means it won’t go in Spanish)



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 - Buick LaCrosse (means masturbating teenagers in Quebec)



Wording Issues

- Currency symbols: \$1000 (US, Canada), vs. ¥1000 (Japan) or £1000 (UK)
- Avoid abbreviations and slang
 - “MI” for middle initial
 - “N/A” for not available or not applicable
 - “Under the hood” for how something works
- Ask for child’s age not school grade



Wording Issues

- Holidays can be different
 - Mother's day, New Year, Easter can be at different times
- People's names: "First" name, "Last" name
 - Which is which
 - Also, sometimes, First+Last not very unique (500 "Smith"s, 12 "Roger Smith"s)
 - Email address usually globally unique
- Paper size issues for printing
 - A4 vs. 8.5"x11" vs. ???



Number Issues

- Billion: thousand million or million million?
- Number formats: 4.567 vs. 4,567
 - Ask if ambiguous (not “illegal number”)
- Metric system vs. U.S. customary units:
 - 1 meter versus 1 inch



Number Issues

- Time formats: 2:30 pm vs. 14:30; time zones: EDT
- Date formats: 04/05/07?
 - In US = April 5, 2007
 - In Europe = May 4, 2007
- use April 5, 2004 instead, but also label fields!

__ / __ / __
mm/dd/yy



Number Issues

- Telephone number formats
 - +45 47 17 17 17 vs. (412) 268-5150 vs. 1-412-268-5150
 - Allow +, (), -, . etc.



Types of Icon/Symbols

- Resemblance icons:

- Looks like physical object
- But really representational for *related concept*



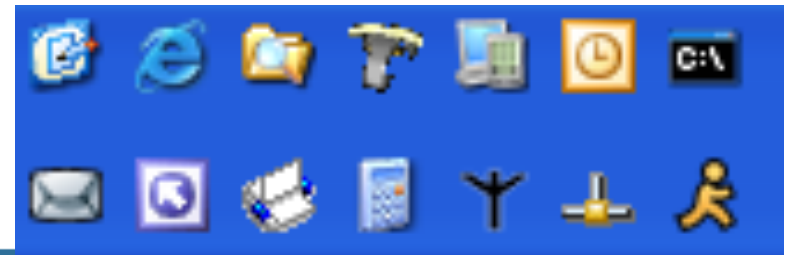
- Reference icons:

- Looks like an object which references another
- Analogy
- Also called symbolic icons; index icons



Arbitrary icons

- Only have meaning by convention



Icon/Symbols Issues

- No icons with fingers or feet or other gestures
- Light switches on or off?
- No visual puns
 - Table of numbers as:
 - (In Danish, use *bord* and *tabel*)
- No sports metaphors (“out of left field”)
- Arbitrary icons are even harder
 - Red cross for help



Color Issues

- **Red**

- **China:** Good luck, celebration, summoning
- **Cherokees:** Success, triumph
- **India:** Purity
- **South Africa:** Color of mourning
- **Russia:** Bolsheviks and Communism
- **Eastern:** Worn by brides
- **Western:** Excitement, danger, love, passion, stop, Christmas
(with green)

- **Green**

- **China:** Green hats indicate a man's wife is cheating on him, exorcism
- **India:** Islam
- **Ireland:** Symbol of the entire country
- **Western:** Spring, new birth, go, Saint Patrick's Day, Christmas (with red)



E-Commerce Issues

- Make sure that it is clear what areas are served
 - E.g., cars not available in US, different formats, electrical (110v 220v)
 - E.g., [Service available?](#)
 - Put on home page, shipping page, “about” page, *and* help
 - Use keywords: “Shipping” and/or “International”
- Paying in international currency
- Weights and sizes and clothing sizes in metric and U.S. units



CDW Product Overview: IBM ServicePac 3 Year On Site 24x7 4 Hour - Windows Internet Explorer

http://www.cdw.com/shop/products/default.aspx?EDC=436946

Google

File Edit View Favorites Tools Help

CDW Product Overview: IBM ServicePac ...

Home About Us Customer Support View Cart Log On

CDW Mac Warehouse


Brands Hardware Software Networking Accessories Services Product Finders

800.750.4239

RESOURCES

- My Purchases
- Order Status
- My Company
- My Solutions
- My Account
- Account Team
- New Accounts
- Rebates
- Special Events
- CDW Outlet
- Technical Support
- Request Catalog
- eNewsletters
- Research Center

PRINTABLE VERSION



IBM Premier Business Partner

IBM ServicePac 3 Year On Site 24x7 4 Hour

Product ID
CDW Part: 436946
Mfg. Part: 69P9518
UNSPSC: 81111812

Availability:
Call for availability

Send To An Associate »

Find Similar Products »

Be the first to [write a review](#). (Log On required)

Product Pricing

Price:

\$456.99

Qty: 1

+ Add to Cart

Overview Specs Product Reviews

Main Features

- Service for IBM BladeCenter HS20 (8678)

Protect your investment

Servers are the ideal way to share huge volumes of data among many users. But if the server goes down, many times the business may come to a grinding halt. Idle user. Lost Sales. Missed deadlines. In short, a productivity nightmare. With an easy-to-use IBM ServicePac, your business can have a Service Technician on site as little as four hours. A skilled IBM support specialist, who'll work diligently to minimize downtime and get critical computing resources back up and running.

24x7 4 Hour: A service technician is scheduled to arrive at your location within four hours after problem determination is completed. Service is provided around the clock, every day, including IBM holidays.

Service Contracts and Warranty Extensions

Service Contract - Response Time: 4 hour same day
Service Contract - Service Hours: Twenty-four hours, seven days a week (24X7)
Service Contract - Service Length: 3 year(s)
Service Contract - Service level: On-site

Done

Internet 100%

Just Flowers- Send a Flower Delivery - Windows Internet Explorer

http://www.justflowers.com/home.asp?se=1

File Edit View Favorites Tools Help

Just Flowers- Send a Flower Delivery

Service: 800.794.3237
Orders: 800.597.4489

JustFlowers.com

All Occasion KEYWORD Search

Find the perfect gift Same Day Florist Flower Delivery

Birthday | Get Well | Sympathy | Funeral | Newborn | Thanks | Love | Anniversary | Flowers
Roses | Gift Baskets | Chocolate | Bears | Plants | Fruit | Balloons | Wine

These Flowers and Gifts are Available Nationwide:

Save \$10
Use coupon "JF2007" on order \$50 and over

Send Flowers \$29.99 & Up | Gifts \$29.99 & Up | International | Search

Justflowers.com Home | Our Guarantee | Customer Service | Your Cart
Search | About Us | Security & Privacy | Delivery Info **International Orders**

Mother's Day Flowers | Mother's Day Gifts

© 1996-2007 just flowers dot com

Internet 100%

Disney.com | Shopping | Home - Windows Internet Explorer

http://home.disney.go.com/shopping/?CMP=ILL-disneystorescom&att=dcmsppngdstrscm

File Edit View Favorites Tools Help

Just Flowers- Send a FL... Disney.com | Shop...

Disney Movies TV Games Music Live Events Travel Shop Mobile Characters For You Disney XD Search Disney.com Go

Login | 0 Items in Cart Spring Savings - Up to 60% Off For the Home!

Departments What's New Swim Shop Character Shop Disney Outlet

Hey kids, only grownups can buy stuff on Disney.com

Search DisneyShopping.com Enter Keyword All of Disney Shopping Go

Departments

- Toys & Games
- Movies & Music
- Clothes & Accessories
- For the Home
- Collectibles & Pins

For Kids

- Clothes for Girls
- Clothes for Boys
- Sleepwear
- Costumes
- Action Figures
- Dolls

For Grown-Ups

- Clothes for Her
- Clothes for Him
- Watches
- Luggage
- Outdoor
- Car Accessories
- Snowglobes

Character Shops

- Princess
- Fairies
- Mickey & Friends
- Cars
- Pirates
- See More

New Releases

- Meet the Robinsons
- Peter Pan
- Pirates

FREE SHIPPING on your shipment of \$80 or more
Restrictions Apply - See details Promo Code: **SHIP80**

Ends Tomorrow!
For the Home
*Spend some time with good friends,
just outside your door!*
Spring Savings
Up to 60% Off
Restrictions Apply - See details
Shop Now

SHOP Bedroom | Bathroom | Kitchen | Home Décor | Outdoor | Car Accessories

Sign Up for Emails

Enter email address

Sign Up Now!

Disney Rewards® Visa® Card

SAVE \$25 INSTANTLY **APPLY NOW**
When you are approved online

Savings - Up to 40% Off!

- Power Rangers Swim Trunks
Sale: \$12.99 Was: \$19.95
- Tinker Bell Crossback Swimsuit
Sale: \$14.99 Was: \$24.95
- Ariel Personalized Beach Towel
Sale: \$12.99 Was: \$19.95
- Eeyore One-Piece Swimsuit for Her
Sale: \$19.99 Was: \$42.95
- Cars Beach Lounge Chair
Sale: \$12.99 Was: \$19.95
- Princess Swim Shoes
Sale: \$11.99 Was: \$14.95
- Pirates Board Shorts for Him
Sale: \$19.99 Was: \$34.95
- More Swim Shop Savings...

IN THE SPOTLIGHT
Beach Chairs for Kids
As Low As \$9.99

Kitchen Essentials
Save Up to 60% Off
Spring Savings Event

Swim Shop
Dive Right In
Savings Up to 40% Off

See What's New
Find Something New
For Disney Fans of All Ages

Read Disney Fairies Books

Join the Disney Movie Club

Give a Disney Gift Card

Get a Disney Phone

Done Internet 100%

Shipping Issues

- Shipping charges and options for overseas
 - Sales taxes?
- Accept entry of non-US characters in fields
 - May be an issue for sorting, etc.
- Consider have separate US and overseas shipping pages
- Otherwise:
 - Use “zip / postal code” as prompt
 - Different organization of postal address (postal code after city or after state?)
 - In “state/province” field,
 - Full-length state names
 - **Option for “other countries” in *state* field**



URL Issues

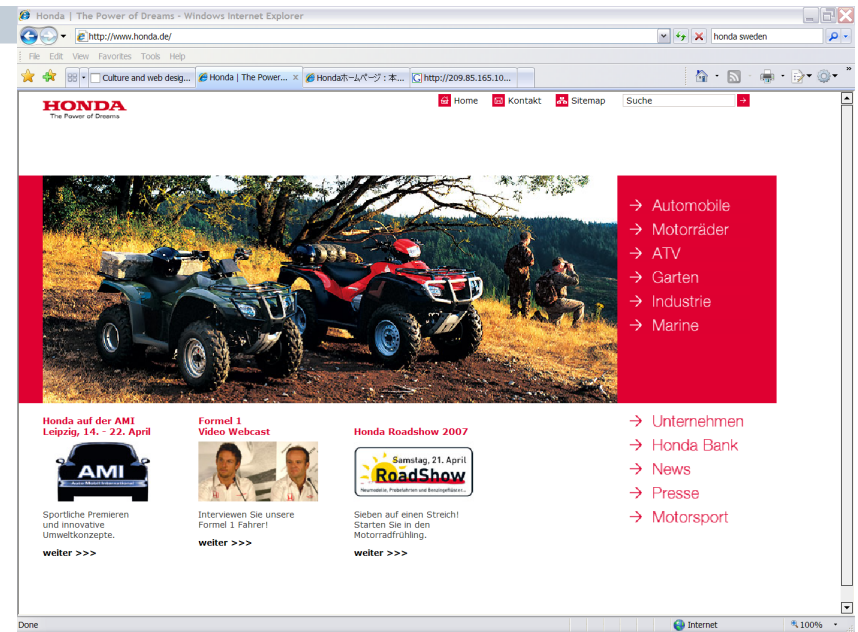
- Use `www.company.com` for english version
- Use `www.company.co.xx` (uk, de, kr, cn) for foreign sites
- Use local (country specific) URL also for sites of only local interest



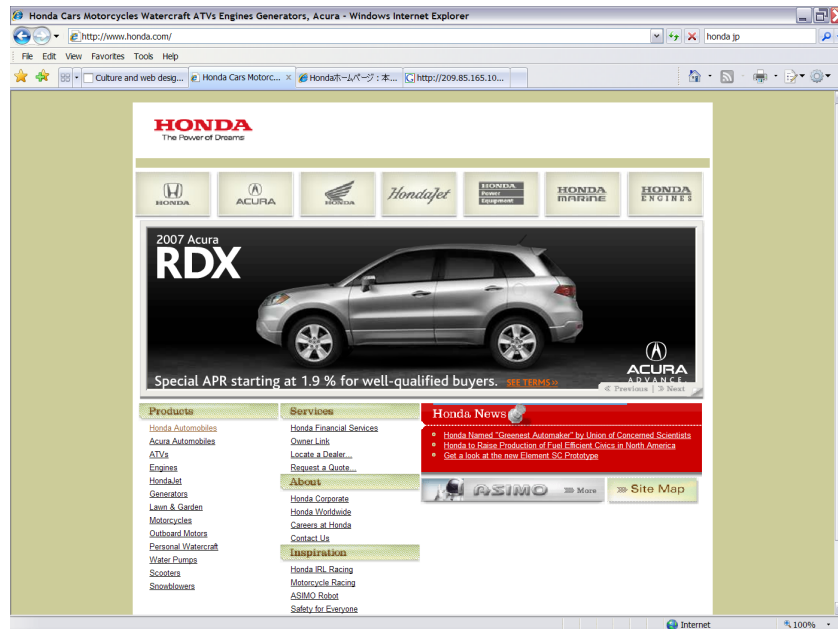
What Can We Do?

- Should always know your users
- Different designs customized to different languages/cultures (similar to marketing, product development)





Localization of Honda



Hondaホームページ：本田技研工業株式会社 - Windows Internet Explorer

http://www.honda.co.jp/ honda.jp

File Edit View Favorites Tools Help

Culture and web desig... Honda Cars Motorcycl... Hondaホームページ：... http://209.85.165.10...

Honda Worldwide | お客様窓口

検索



HONDA
The Power of Dreams

クルマ AUTOMOBILES	<ul style="list-style-type: none">■クルマを見る■最新ニュース■お店を検索	<ul style="list-style-type: none">■中古車■リコール	バイク MOTORCYCLES	<ul style="list-style-type: none">■バイクを見る■最新ニュース■お店を検索	<ul style="list-style-type: none">■中古車■リコール	汎用製品 POWERPRODUCTS	<ul style="list-style-type: none">■発電機■船外機■モンパル	<ul style="list-style-type: none">■耕うん機■お店を検索■無償修理
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❖ 広報発表 ■ インターナビ 会員数が50万人を突破(07.04.09) ❖ 投資家情報 ■ 基準日の公告(07.03.14)

❖ 更新情報 ❖ RSS

- ❖ 5月連休にHonda菜園in青山開催
- ❖ F1 第2戦 バリチェロ11位
- ❖ Cカード サイトリニューアル
- ❖ わんことフィットでおかけ
- ❖ 体感・試乗キャンペーン実施中
- ❖ ライダーズボイス モバイル開始

❖ TV-CM



❖ おすすめ

- ❖ バイクの車検・点検の法改正
- ❖ 新登場 シビック TYPE R
- ❖ シビックTYPE R メッセージ篇
- ❖ F1 myearthdreamプロジェクト
- ❖ 多摩テックで旧車名車を語ろう
- ❖ クロスロード キャンペーン実施中

コミュニティ ❖ モータースポーツ ❖ スピリット ❖ Hondaの活動

Internet 100%

Honda | The Power of Dreams - Windows Internet Explorer


http://www.honda.de/ honda sweden

File Edit View Favorites Tools Help

Culture and web design... Honda | The Power... Hondaホームページ: 本... http://209.85.165.10...


Home Kontakt Sitemap Suche

HONDA
The Power of Dreams



- Automobile
- Motorräder
- ATV
- Garten
- Industrie
- Marine


Honda auf der AMI
Leipzig, 14. - 22. April



Sportliche Premieren
und innovative
Umweltkonzepte.

weiter >>>


Formel 1
Video Webcast



Interviewen Sie unsere
Formel 1 Fahrer!

weiter >>>

Honda Roadshow 2007



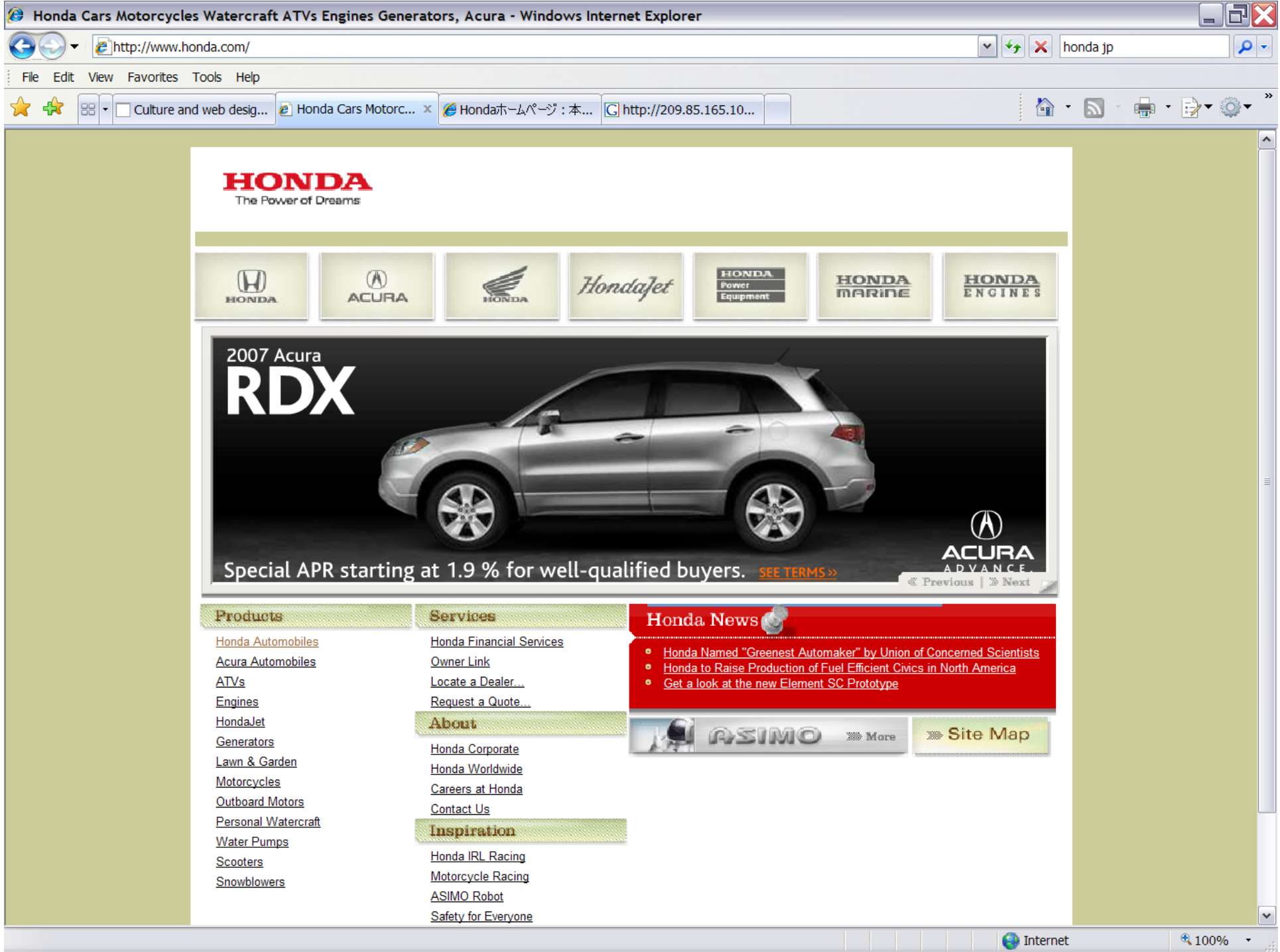
Sieben auf einen Streich!
Starten Sie in den
Motorradfrühling.

weiter >>>

- Unternehmen
- Honda Bank
- News
- Presse
- Motorsport

Done Internet 100%





Localization

- Not just translating the interface
 - Web sites may have different content
 - e.g. German yahoo (used to) has soccer on front page, but not US Yahoo
 - Different sizes of language may require redesign
 - But automatic layout can help
 - Make sure translation of terms is consistent with industry standards



Localization

- When there is a choice of language
 - Don't use flags to indicate language
 - US vs. Canada vs. England
 - Use language's own name for itself (ENGLISH, ESPAÑOL, 한국어)
 - Good place for pictures of text
 - In case fonts aren't loaded



International User testing

- Localized interface can have new and different usability problems
 - Not sufficient to test one version and then translate
- Should perform heuristic analysis by usability specialists familiar with target culture and language
- Should test with native speakers in different countries
- Use international or national usability consultants



International Programming Issues

- Layout issues
 - These type of changes must be done manually.
 - Macromedia's recommendation (Flash) is to make text boxes 25% wider than English.



More Programming Issues

- Representation of characters
 - Unicode (UTF) vs. bytes
 - UTF is encoding for Unicode in 8 bits, 16 bits, 32 bits, (UTF-8)
 - “char” in C, C++ is same as byte = 8 bits
 - All Unicode formats and fonts are directly supported in Flex and Flash (8-bit UTF, 16-bit big and little endian UTF).
 - Typically, lots of [helper classes](#) for converting among formats
- Sorting of characters
 - o vs. ñ vs. ö



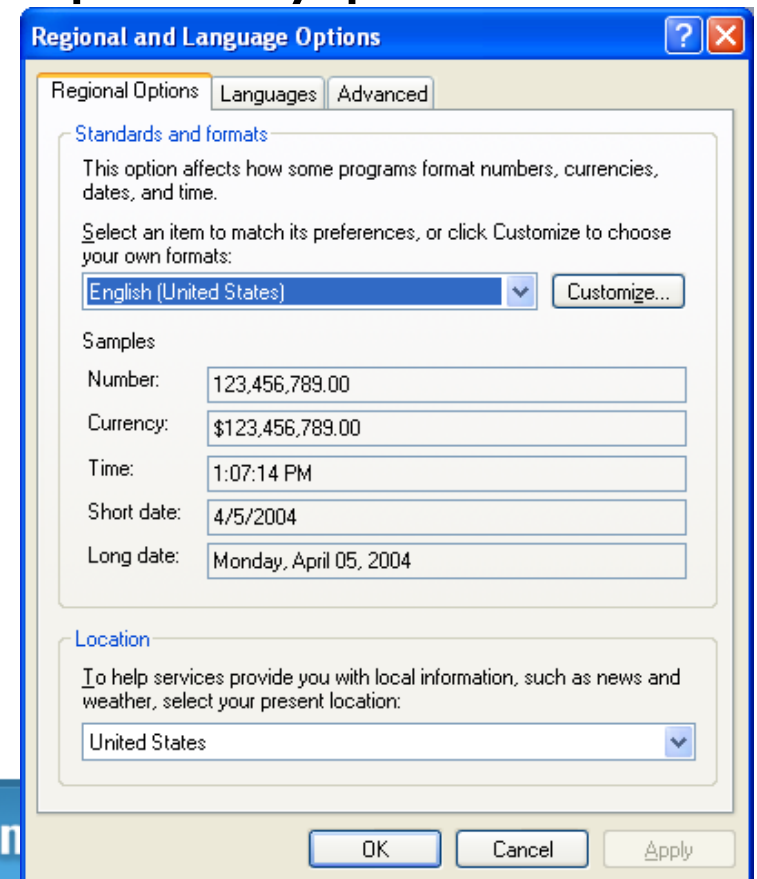
More Programming Issues

- Left-to-right vs. right-to-left text
 - Flash: supports vertical and horizontal text box layouts, as well as right to left font rendering (but not entry).
However, their right-to-left algorithms was apparently broken
 - VB: Control has RightToLeft property, but may have to mirror layout



More Programming Issues

- Mechanisms for printing currency, dates, etc.
 - call ToString() on the object, and optionally pass in a format specification, such as "d" (short date).
 - [List of formats](#)
 - [Currency](#): myVar.ToString("c"), where myVar is a numeric type



Resource Files

- Store all text strings in separate files so don't necessarily need to recompile to translate, or fix translations
- Prompts, labels, pop-up messages
- But also error messages, other text generated by a program
- Often must be parameterized at run-time
 - Ordering of parameters may be different



Internationalization

- Other issues?
- Solutions?



Assistive Technology

Universal Design



- Universal design is the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design.
- The intent of universal design is to simplify life for everyone by making products, communications, and the built environment more usable by as many people as possible at little or no extra cost.
- Universal design benefits people of all ages and abilities.



Questions?

Don't Despair!

Better to provide *some* flexibility even if
support for *all* cannot be achieved



References

- <http://java.sun.com/docs/books/tutorial/illustrations/index.html>

